



# Medical Textiles Research on Hospital Material Efficiency

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## The Healthcare Environment for Reusable Textiles

Previous and current research on disposable and reusable medical textiles market trends, awareness, and attitudes

- UC Davis Division of Textiles and Clothing NSF grant
- Personal gown preference and reasons (Rucker et al, 2009)
- Predicting healthcare workers preference for disposable and reusable surgical gowns (Brasch, 2011)
- Linen Efficiency Campaign Reduces Linen Use by 12%. (Brasch, 2014)
- Material Flow Analysis for Hospital Efficiency: Case Study on Surgical Attire (Brasch, 2015)

## UC Davis Health System

### UC Davis Medical Center (UCDMC)

- 615-bed teaching hospital
- 1 of 5 UC Medical Campuses
- Established Sustainability Dept on both campuses
- Large student population with sustainability awareness



Linen replacement and laundering costs totaled around **\$2 million** in FY 2010-11 and exceeded **\$2.25 million** in FY 2011-12.

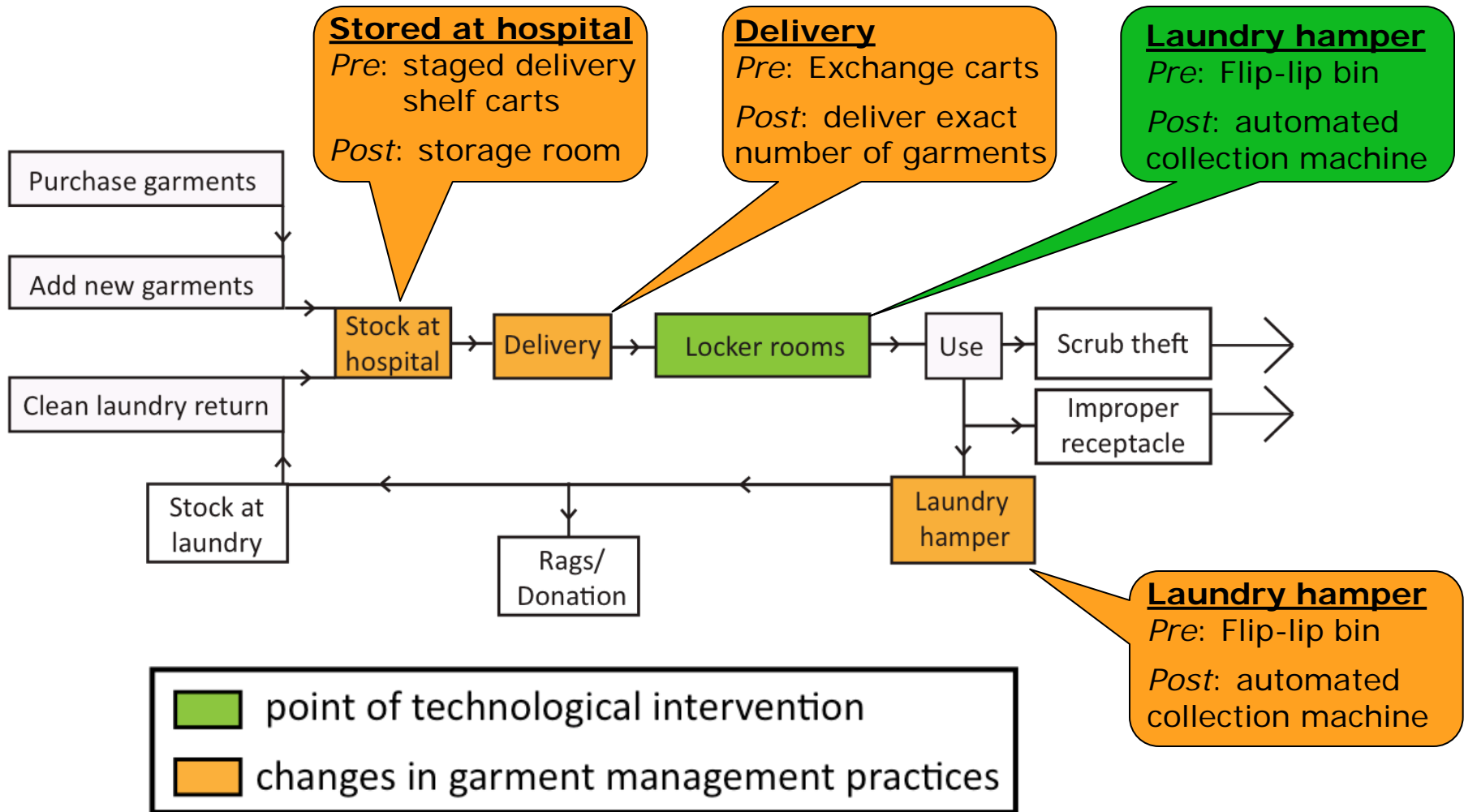
## Considered projects on material efficiency

- Reusable isolation gowns
- Reusable surgical linen
- Reusable under pads
- Reusable warm-up jackets
- *Scrub dispenser*  
(completed)



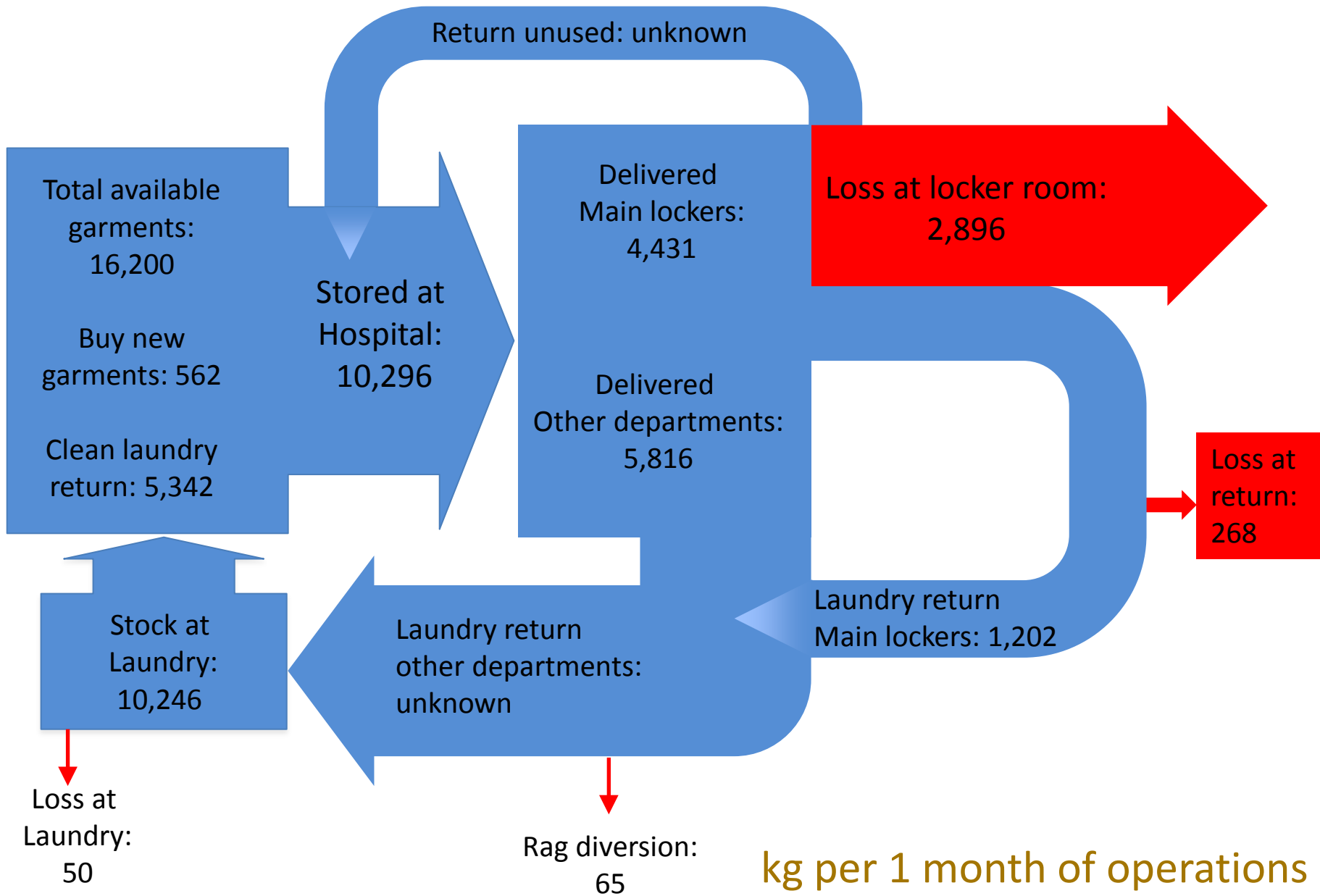
## Best Practices: Technology Solutions

- Scrub dispenser
  - Gaining control of scrub access and loss
  - Installed Dec 2013, six-month trial
  - Before and after systematic comparisons
  - New garment system is more efficient
  - recovering lost inventory, reduced labor

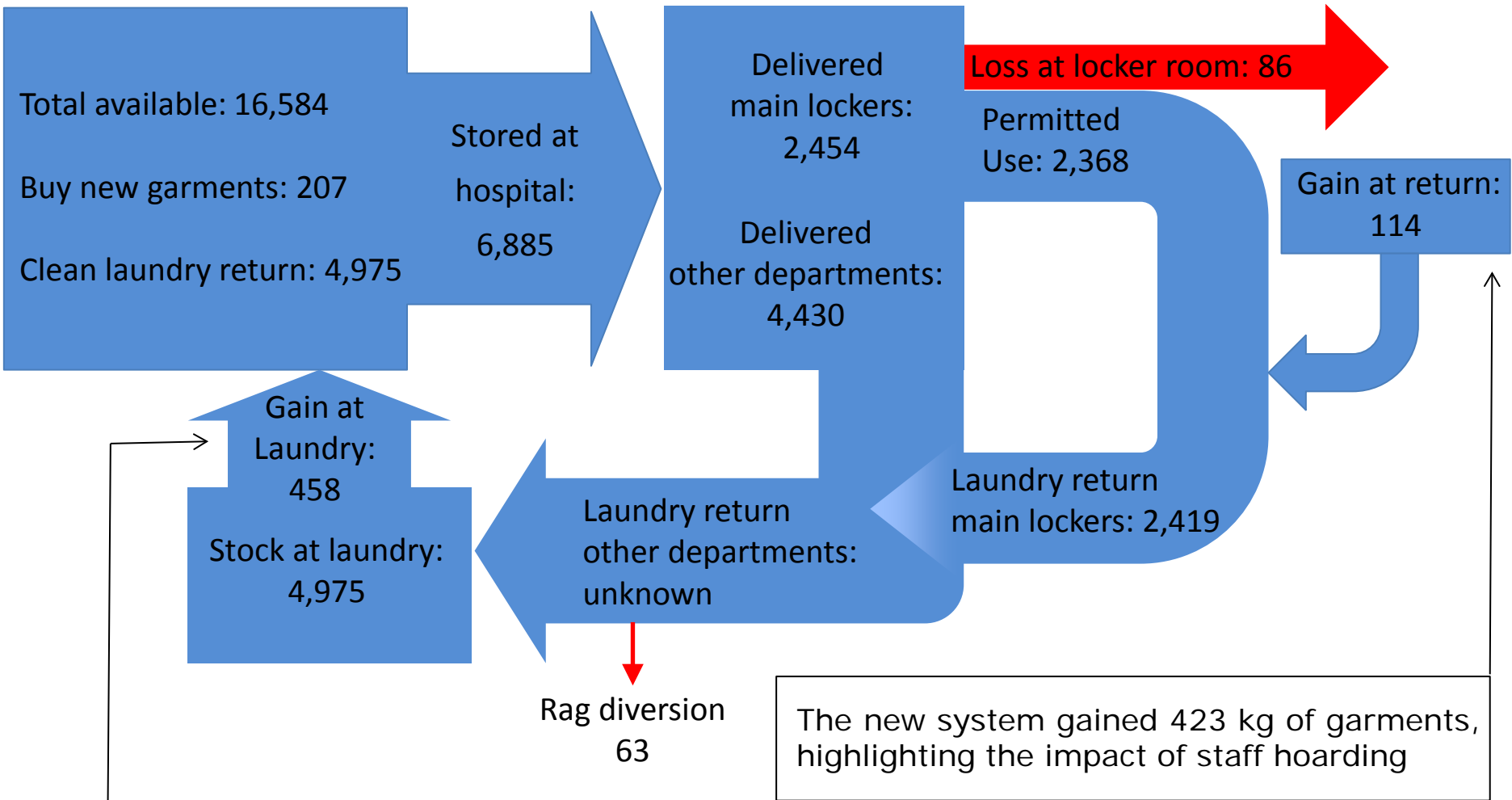


What are the systematic impacts of the technological intervention and changes in management on the garment process?

# Sankey Diagram, pre-intervention material flow



# Sankey diagram, post-intervention material flow



kg per 1 month of operations



## Best Practices: Behavior Modification

- Communicate with managers, find champions
- Involve Environmental Services
- Educate on additional benefits i.e. labor savings and environmental impact reduction
- Marketing a culture of conservation, encourage anonymous garment return
- Share results with leadership and each department

## Challenges

- Acceptance of changes in practice and policy
- Data accuracy
- Education
- Distribution logistics
- Signage
- Hamper misuse
  - Reject bag placement
  - Linen in trash
  - Linen in red bag



## Obstacles to adoption

- Reusable surgical linen
  - ◆ Proposal increased total cost and conflicted with contracts
  - ◆ Loss of rebates from manufacturers of disposables
- Reusable warm-up jackets
  - ◆ Trialed three material types
  - ◆ Decision to adopt dependent on vending machine control on access
- Reusable isolation gowns
  - ◆ UCLA first UC to transition, anticipating savings
  - ◆ To be trialed soon

# Thank You!

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